AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1-3. (Canceled)

4. (Previously presented) An integrated circuit for compressing peak sample values in spread spectrum signals, comprising:

a plurality of peak detection and cancellation circuits arranged in a sequence, a first peak detection and cancellation circuit having an input coupled to receive a spread spectrum symbol stream, at least a second peak detection and cancellation circuit having an input coupled to the output of a preceding peak detection and cancellation circuit in the sequence, each peak detection and cancellation circuit for applying a cancellation pulse to a received symbol stream responsive to detecting a peak amplitude in the received symbol stream exceeding a threshold, and for presenting a compressed symbol stream including the received symbol stream and cancellation pulse at its output, wherein at least one of the plurality of peak detection and cancellation circuits comprises:

a peak detector circuit, for identifying a peak location and a filter value corresponding to an amplitude at the peak location;

a cancellation circuit, for producing a cancellation pulse corresponding to the identified peak location and the corresponding filter value;

a delay stage, for delaying the received symbol stream; and

an adder, for combining the delayed received symbol stream and the cancellation pulse.

5. (Original) The integrated circuit of claim 4, wherein the peak detector circuit comprises

an interpolating circuit, for generating a curve-fitting estimate of values near a sample point;

an evaluation circuit, for determining the peak location from the curve-fitting estimate;

a value computation circuit, for evaluating the amplitude at the peak location;

a qualifier, for comparing the evaluated amplitude against a threshold value; and

a filter generator, for producing the filter value from the evaluated amplitude.

6. (Original) The integrated circuit of claim 5, wherein the interpolating circuit comprises a Farrow filter bank.

7. (Previously presented) The integrated circuit of claim 5, wherein the evaluation circuit implements a binary search function.

8. (Previously presented) An integrated circuit for compressing peak sample values in spread spectrum signals, comprising:

a plurality of peak detection and cancellation circuits arranged in a sequence, a first peak detection and cancellation circuit having an input coupled to receive a spread spectrum symbol stream, at least a second peak detection and cancellation circuit having an input coupled to the output of a preceding peak

detection and cancellation circuit in the sequence, each peak detection and cancellation circuit for applying a cancellation pulse to a received symbol stream responsive to detecting a peak amplitude in the received symbol stream exceeding a threshold, and for presenting a compressed symbol stream including the received symbol stream and cancellation pulse at its output;

wherein at least one of the plurality of peak detection and cancellation circuits comprises:

a peak detector circuit, for identifying a peak location and a filter value corresponding to an amplitude at a peak location, wherein the peak detector circuit comprises:

an interpolating circuit, for generating a curve-fitting estimate of values near a sample point;

an evaluation circuit, for determining the peak location from the curve-fitting estimate;

a value computation circuit, for evaluating the amplitude at the peak location;

a qualifier, for comparing the evaluated amplitude against a threshold value;

a filter generator, for producing the filter value from the evaluated amplitude; and

a peak pre-qualifier, for comparing a magnitude for each sample point in the received symbol stream with magnitudes of one or more neighboring samples, and for pre-qualifying a sample point if its magnitude is greater than that of the one or more neighboring samples;

wherein the interpolating circuit produces a curve-fitting estimate of values near a sample point responsive to the peak pre-qualifier pre-qualifying the sample point;

a delay stage for delaying the received symbol stream; and

an adder, for combining the delayed received symbol stream and the cancellation pulse.

9. (Original) The integrated circuit of claim 5, wherein the qualifier is also for issuing a qualifying signal for a first sample point responsive to the evaluated amplitude of the first sample point exceeding a threshold value in combination with no subsequent sample points in a selected interval having a larger evaluated amplitude than that of the first sample point.

10. (Currently amended) An integrated circuit for compressing peak sample values in spread spectrum signals, comprising:

a plurality of peak detection and cancellation circuits arranged in a sequence, a first peak detection and cancellation circuit having an input coupled to receive a spread spectrum symbol stream, at least a second peak detection and cancellation circuit having an input coupled to the output of a preceding peak detection and cancellation circuit in the sequence, each peak detection and cancellation circuit for applying a cancellation pulse to a received symbol stream responsive to detecting a peak amplitude in the received symbol stream exceeding a threshold, and for presenting a compressed symbol stream including the received symbol stream and cancellation pulse at its output;

wherein at least one of the plurality of peak detection and cancellation circuits comprises:

a peak detector circuit, for identifying a peak location and a filter value corresponding to an amplitude at a peak location;

a delay stage for delaying the received symbol stream;

an adder for combining the delayed received symbol stream and the cancellation pulse; and

at least two cancellation pulse generators coupling said peak detector circuit to said adder.

11. (Currently amended) The integrated circuit of claim 10, wherein each of the at least two~~plurality of~~ cancellation pulse generators comprises:

a look-up table memory for storing a plurality of FIR pulse coefficients;

computational circuitry, coupled to the look-up table memory and to the peak detector circuit, for producing a data stream corresponding to the combination of the FIR pulse coefficients with an offset corresponding to the peak location; and

gain scaling circuitry, for scaling the data stream responsive to the filter value from a filter generator of the peak detector circuit.

12. (Original) The integrated circuit of claim 11, wherein the filter value comprises in-phase and quadrature-phase components; and wherein the output of the gain scaling circuitry comprises in-phase and quadrature-phase components.

13. (Currently amended) The integrated circuit of claim 10, wherein each of the at least two~~plurality of~~ cancellation pulse generators comprises:

infinite impulse response circuitry, for producing a data stream corresponding to an offset corresponding to the peak location.

14. (Currently amended) The integrated circuit of claim 10, further comprising:

an unprocessed peak counter, for counting a number of peak amplitudes not processed by the at least two~~plurality of~~ cancellation pulse generators in each

of the plurality of peak detection and cancellation circuits.

15-17. (Canceled)

18. (Currently amended) A method of transmitting a spread spectrum communications signal, comprising the steps of:

applying at least one peak compression pulse to the spread spectrum signal at a first peak sample point, the magnitude of the signal at the first peak sample point exceeding a peak qualifying threshold, to produce a peak-compressed symbol stream;

repeating, at least twice, the applying step on the peak-compressed symbol stream~~The method of claim 15~~, wherein each applying step comprises:

identifying a peak location and a filter value corresponding to an amplitude at a peak location in the spread spectrum signal;

producing a cancellation pulse corresponding to the identified peak location and the corresponding filter value;

delaying the spread spectrum signal to match the peak location; and

combining the delayed received signal and the cancellation pulse; and

amplifying an analog modulated signal corresponding to a peak-compressed symbol stream from the last of the repeated applying steps to produce the signal to be transmitted.

19. (Original) The method of claim 18, wherein the identifying step comprises:

generating a curve-fitting estimate over a delay interval near a sample point;

determining the peak location within the delay interval from the curve-fitting estimate;

evaluating the amplitude at the determined peak location;

comparing the evaluated amplitude against a peak qualifying threshold; and

producing the filter value responsive to the evaluated amplitude.

20. (Original) The method of claim 19, wherein the step of generating a curve-fitting estimate comprises applying the value of the sample point and a plurality of neighboring sample points to a Farrow filter.

21. (Original) The method of claim 19, wherein the step of determining the peak location from the curve-fitting estimate comprises performing a binary search of amplitudes of the estimated curve over the delay interval.

22. (Previously presented) A method of transmitting a spread spectrum communications signal, comprising the steps of:

applying at least one peak compression pulse to the spread spectrum signal at a first peak sample point, the magnitude of the signal at the first peak sample point exceeding a peak qualifying threshold, to produce a peak-compressed symbol stream;

repeating, at least once, the applying step on the peak-compressed symbol stream;

amplifying an analog modulated signal corresponding to a peak-compressed symbol stream from the last of the repeated applying steps to produce the signal to be transmitted;

wherein each applying step comprises:

identifying a peak location and a filter value corresponding to an amplitude at a peak location in the spread spectrum signal;

producing a cancellation pulse corresponding to the identified peak location and the corresponding filter value;

delaying the spread spectrum signal to match the peak location;

combining the delayed received signal and the cancellation pulse;

wherein the identifying step comprises:

generating a curve-fitting estimate over a delay interval near a sample point;

determining the peak location within the delay interval from the curve-fitting estimate;

evaluating the amplitude at the determined peak location;

comparing the evaluated amplitude against a peak qualifying threshold; and

producing the filter value responsive to the evaluated amplitude;

comparing a magnitude of each sample point in the received symbol stream with magnitudes of one or more neighboring samples;

pre-qualifying a sample point if its magnitude is greater than that of the one or more neighboring samples;

wherein the identifying step is performed for pre-qualified sample points.

23. (Previously presented) A method of transmitting a spread spectrum communications signal, comprising the steps of:

applying at least one peak compression pulse to the spread spectrum signal at a first peak sample point, the magnitude of the signal at the first peak sample point exceeding a peak qualifying threshold, to produce a peak-compressed symbol stream;

repeating, at least once, the applying step on the peak-compressed symbol stream;

amplifying an analog modulated signal corresponding to a peak-compressed symbol stream from the last of the repeated applying steps to produce the signal to be transmitted;

wherein each applying step comprises:

identifying a peak location and a filter value corresponding to an amplitude at a peak location in the spread spectrum signal;

producing a cancellation pulse corresponding to the identified peak location and the corresponding filter value;

delaying the spread spectrum signal to match the peak location;

combining the delayed received signal and the cancellation pulse;

wherein the identifying step comprises:

generating a curve-fitting estimate over a delay interval near a sample point;

determining the peak location within the delay interval from the curve-fitting estimate;

evaluating the amplitude at the determined peak location;

comparing the evaluated amplitude against a peak qualifying threshold; and

producing the filter value responsive to the evaluated amplitude;

responsive to the comparing step determining that the evaluated amplitude of a first sample point exceeds the peak qualifying threshold, comparing the evaluated amplitudes of peak sample points over a selected number of subsequent sample points;

wherein the producing step is performed for the first sample point responsive to no peak sample points in the selected

number of subsequent sample points having a larger evaluated amplitude than that of the first sample point; and

responsive to the comparing step determining that the evaluated amplitude of a second sample point within the selected number of subsequent sample points has a larger evaluated amplitude than that of the first sample point, inhibiting producing of the filter value for the first sample point and then repeating the comparing the evaluated amplitudes of peak sample points over a selected number of subsequent sample points relative to the second sample point.

24. (Original) The method of claim 18, wherein the step of producing a cancellation pulse is performed within each applying step simultaneously for a plurality of identified peak locations in the symbol stream.

25. (Original) The method of claim 18, wherein the step of producing a cancellation pulse comprises:

accessing a look-up table memory to retrieve FIR pulse coefficients;

combining the FIR pulse coefficients with an offset corresponding to the peak location to produce a data stream; and gain scaling the data stream responsive to the filter value.

26. (Original) The method of claim 25, wherein the gain scaling step comprises applying in-phase and quadrature-phase components of the filter value to the data stream to produce in-phase and quadrature-phase components of the data stream.

27. (Original) The method of claim 18, wherein the step of generating a cancellation pulse comprises:

applying an infinite impulse response filter to an offset corresponding to the peak location.

28-29. (Canceled)

30. (Previously presented) A wireless base station for transmitting spread spectrum signals corresponding to a plurality of communications channels, comprising:

at least one coder/decoder for generating a spread spectrum signal over a plurality of channels, the signal being arranged in the form of a digital symbol stream;

a plurality of peak detection and cancellation circuits arranged in a sequence, a first peak detection and cancellation circuit having an input coupled to receive the digital symbol stream, at least a second peak detection and cancellation circuit having an input coupled to the output of a preceding peak detection and cancellation circuit in the sequence, each peak detection and cancellation circuit for applying a cancellation pulse to a received symbol stream responsive to detecting a peak amplitude in the received symbol stream exceeding a threshold, and for presenting a compressed symbol stream including the received symbol stream and cancellation pulse at its output;

a digital-to-analog converter for converting the compressed symbol stream to an analog signal;

modulation circuitry for producing a modulated signal, corresponding to the analog signal, at a carrier frequency; and a power amplifier, for amplifying the modulated signal for transmission;

wherein at least one of the plurality of peak detection and cancellation circuits comprises:

a peak detector circuit, for identifying a peak location and a filter value corresponding to an amplitude at the peak location;

at least one cancellation pulse generator, for producing a cancellation pulse corresponding to the identified peak location and the corresponding filter value;

a delay stage for delaying the received symbol stream; and

an adder, for combining the delayed received symbol stream and the cancellation pulse.

31. (Original) The base station of claim 30, wherein the peak detector circuit comprises

an interpolating circuit, for generating a curve-fitting estimate of values near a sample point;

an evaluation circuit, for determining the peak location from the curve-fitting estimate;

a value computation circuit, for evaluating the amplitude at the peak location;

a qualifier, for comparing the evaluated amplitude against a threshold value; and

a filter generator, for producing the filter value from the evaluated amplitude.

32. (Original) The base station of claim 31, wherein the interpolating circuit comprises a Farrow filter bank.

33. (Previously presented) The base station of claim 31, wherein the evaluation circuit implements a binary search function.

34. (Previously presented) A wireless base station for transmitting spread spectrum signals corresponding to a plurality of communications channels, comprising:

at least one coder/decoder for generating a spread spectrum signal over a plurality of channels, the signal being arranged in the form of a digital symbol stream;

a plurality of peak detection and cancellation circuits arranged in a sequence, a first peak detection and cancellation circuit having an input coupled to receive the digital symbol stream, at least a second peak detection and cancellation circuit having an input coupled to the output of a preceding peak detection and cancellation circuit in the sequence, each peak detection and cancellation circuit for applying a cancellation pulse to a received symbol stream responsive to detecting a peak amplitude in the received symbol stream exceeding a threshold, and for presenting a compressed symbol stream including the received symbol stream and cancellation pulse at its output;

a digital-to-analog converter for converting the compressed symbol stream to an analog signal;

modulation circuitry for producing a modulated signal, corresponding to the analog signal, at a carrier frequency;

a power amplifier, for amplifying the modulated signal for transmission; and

a peak pre-qualifier, for comparing a magnitude for each sample point in the received symbol stream with magnitudes of one or more neighboring samples, and for pre-qualifying a sample point if its magnitude is greater than that of the

one or more neighboring samples.

35. (Previously presented) The base station of claim 31, wherein the qualifier is also for issuing a qualifying signal for a first sample point responsive to the evaluated amplitude of the first sample point exceeding a threshold value in combination with no subsequent sample points in a selected interval having a larger evaluated amplitude than that of the first sample point.

36. (Currently amended) The base station of claim 28, wherein the at least three~~one of the plurality of~~ peak detection and cancellation circuits comprises a plurality of cancellation pulse generators; and

wherein each of the plurality of cancellation pulse generators comprises:

a look-up table memory for storing a plurality of FIR pulse coefficients;

computational circuitry, coupled to the look-up table memory and to a~~the~~ peak detector circuit, for producing a data stream corresponding to the combination of the FIR pulse coefficients with an offset corresponding to the peak location; and

gain scaling circuitry coupled to the computational circuitry, for scaling the data stream responsive to the filter value from a~~the~~ filter generator of the peak detector circuit.

37. (Original) The base station of claim 36, wherein the filter value comprises in-phase and quadrature-phase components; and

wherein the output of the gain scaling circuitry comprises in-phase and quadrature-phase components.

38. (Original) The base station of claim 35, wherein each of the plurality of cancellation pulse generators comprises:

infinite impulse response circuitry, for producing a data stream corresponding to an offset corresponding to the peak location.